becomes inactive. As a new drug in this country, we have the security of knowing that metaproterenol has stood the test of time in the rest of the world.

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Effective Thyroxine Ratio (ETR)

THE MOST ACCURATE measurement of thyroid function can be obtained by measuring the amount of free, unbound thyroxine (T_4), but an inexpensive assay has not been perfected for routine use. There is a precise correlation between serum T_4 concentration and thyroid status, providing the concentration of serum thyroxine-binding globulin (TBG) is normal.

Changes in the concentration of serum TBG are often associated with parallel changes in serum T_4 concentration even though the thyroid function is normal. Therefore a euthyroid woman in whom there is an increased concentration of TBG due to pregnancy or estogen ingestion often shows a T_4 concentration above normal. The effective-thyroxine ratio (ETR) reflects serum T_4 levels and automatically compensates to a large extent for variations in TBG.

If TBG concentration showed no variation in the normal population, then the value for the ETR would be determined entirely by the level of T_4. For this reason there is a very high linear correlation between ETR and T_4 when patients with TBG abnormalities are excluded.

Although estrogens and progestins are the most frequent causes of increased T_4 serum concentration, sulfamethoxazole, chloramidinone, clofibrate, perphenazine and residual radioactivity also cause an increase. Decreases in T_4 can be caused by at least 30 different drugs by either decreasing T_4 synthesis, by increasing T_4 destruction, by decreasing the amount of TBG or by displacing T_4 from binding sites.

Anything that increases TBG will increase the measurable T_4 or protein bound iodine, but will reduce the triiodothyronine (T_3) proportionately.

The ETR measures only that concentration of T_4 that determines thyroid function, and is expressed as a ratio with T_4 similarly determined in normal serum.

The ETR should not be confused with the FTI (free-thyroxine index). The FTI is also an accurate measurement of thyroid function and is calculated for each patient, $T_3 \times T_4 \times 100$. The ETR is a competitive protein-binding assay and correlates well with the FTI and could replace the more complicated FTI procedure in patients with known abnormalities of binding proteins and suspected thyroid disease.

Several studies now show that the ETR is the best single and practical test of thyroid function. The results, however, (normal range: 0.86 to 1.13) should be carefully interpreted: In hypothyroidism the decreased level may not correlate well with the degree of hypofunction. For instance, a 0.84 may represent a rather severe hypothyroidism with myxedema. The other area of misinterpretation is in patients who have received ^{131}I or antithyroid drugs and are euthyroid. These patients tend to have low ETR scores.

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Combination Therapy of Parkinson's Disease

BY COMBINING a decarboxylase inhibitor with L-dopa at a fixed ratio of one part inhibitor called carbidopa to ten parts of levodopa or L-dopa, three definite advantages have been achieved over the use of the single drug levodopa. First, the combination causes less nausea and vomiting. Second, the combination brings about therapeutic results more quickly. Third, additional improvement occurs in patients who have reached the maximum improvement or the maximum tolerance of the single drug.

Major central nervous system side effects—such as involuntary movements and mania and other psychiatric disturbances—occur as frequently with the combination as they do with the single drug.

The effective dosage range with the combination drug is very broad and varies from a low of 30 mg carbidopa, plus 300 mg levodopa, to a